Lake Itasca Greenway I

Prepared by
Hunter Lutz, Keoni Wong, Lauren Arndt, and Anna Olson

Students in ARCH 3250: Community Design and Public Interest Architecture
Instructor: James Wheeler, College of Design
and LA 3002: Informants of Creating Landscape Space
Instructors: Jessica Rossi-Mastracci and Joe Favour, College of Design

Prepared in Collaboration with
Mark Riverblood
Parks and Assistant Public Works Superintendent
City of Ramsey

City of RAMSEY

Resilient Communities Project
University of Minnesota
Building community-university partnerships for sustainability

The project on which this report is based was completed in collaboration with the City of Ramsey as part of the 2017–2018 Resilient Communities Project (RCP) partnership. RCP is a program at the University of Minnesota's Center for Urban and Regional Affairs (CURA) that connects University faculty and students with Minnesota communities to address strategic projects that advance local resilience and sustainability.

The contents of this report represent the views of the authors, and do not necessarily reflect those of RCP, CURA, the Regents of the University of Minnesota, or the City of Ramsey.

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Resilient Communities Project
University of Minnesota
330 HHHSPA
301—19th Avenue South
Minneapolis, Minnesota 55455
Phone: (612) 625-7501
E-mail: rcp@umn.edu
Web site: http://www.rcp.umn.edu

Lake Itasca Greenway

Concept, Scope & Program

Project deliverables prepared for the City of Ramsey
May 4, 2018

Authors:
Hunter Lutz
Keoni Wong
Lauren Arndt
Anna Olson

University of Minnesota
LA 3002 / ARCH 3250
Community Design Practice: Informants of Creating Space

Our goal is to create a human experience with nature, connecting the COR to Itasca with a focus on stormwater management in respect to future development and existing wetlands.

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Context

The City

The City of Ramsey, MN is found within Anoka County, just northwest of the Twin Cities Metro Area (highlighted in red in Figure 1). Nowthen borders Ramsey to the north, Andover to the east and Anoka to the southeast. Ramsey is adjacent to Sherbourne County and Wright County to the west, and Hennepin County to the south past the Mississippi River (Figure 2). As seen in Figures 1 and 2, on the city's perimeter sit the Mississippi and Rum River, which contribute greatly to the city's development and its existing features. Including the two rivers, Ramsey has many beautiful landscapes, from Lake Itasca to its wetlands and farm fields.

According to predictions made by the City of Ramsey (Figure 3) the rapidly growing city will only continue to grow. With incoming residents, comes increased residential and commercial development nestled into the beautiful Ramsey landscape.

Figure 1 - Ramsey, MN (highlighted in red) is just north of Minneapolis and St. Paul (Google Maps)

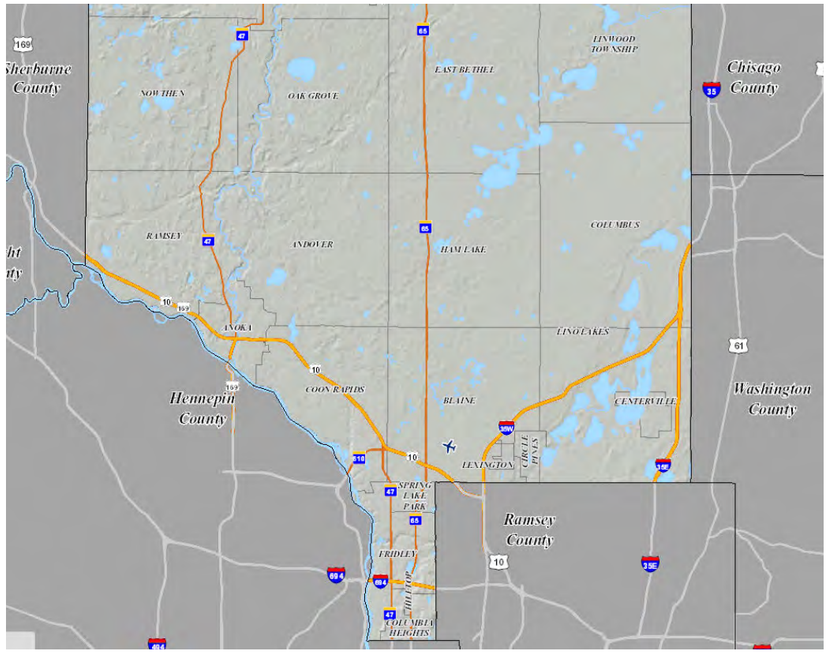


Figure 2 - Ramsey, MN is in the southwest quadrant of Anoka County, bordered by three other cities and three other MN counties. (Anoka County Property Maps)

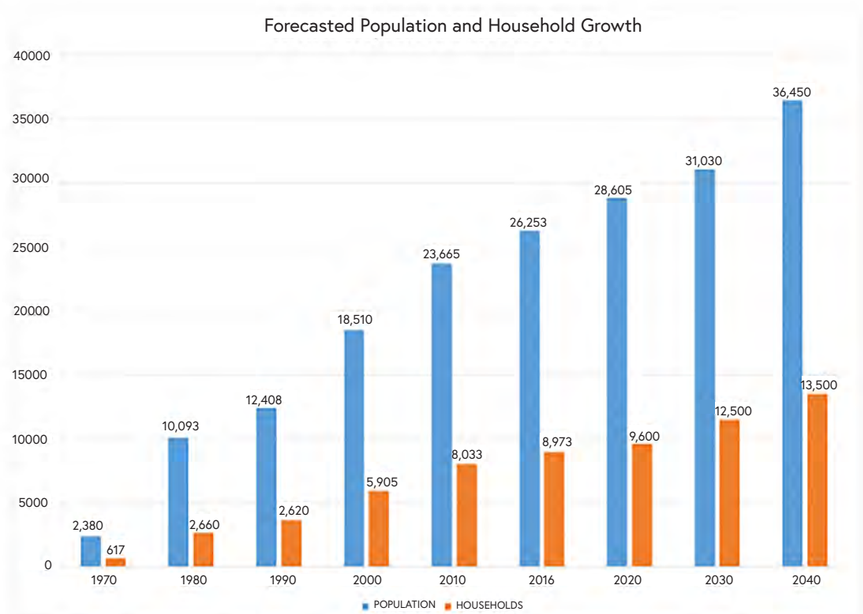
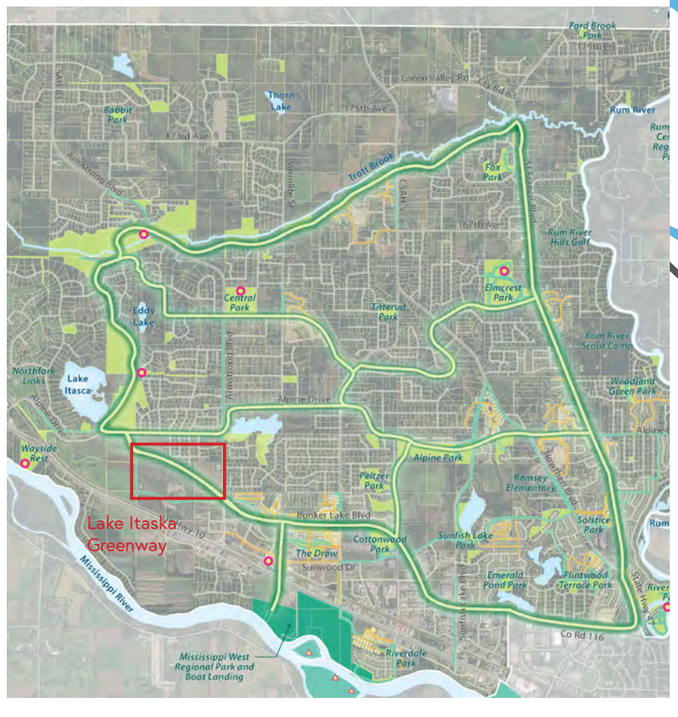
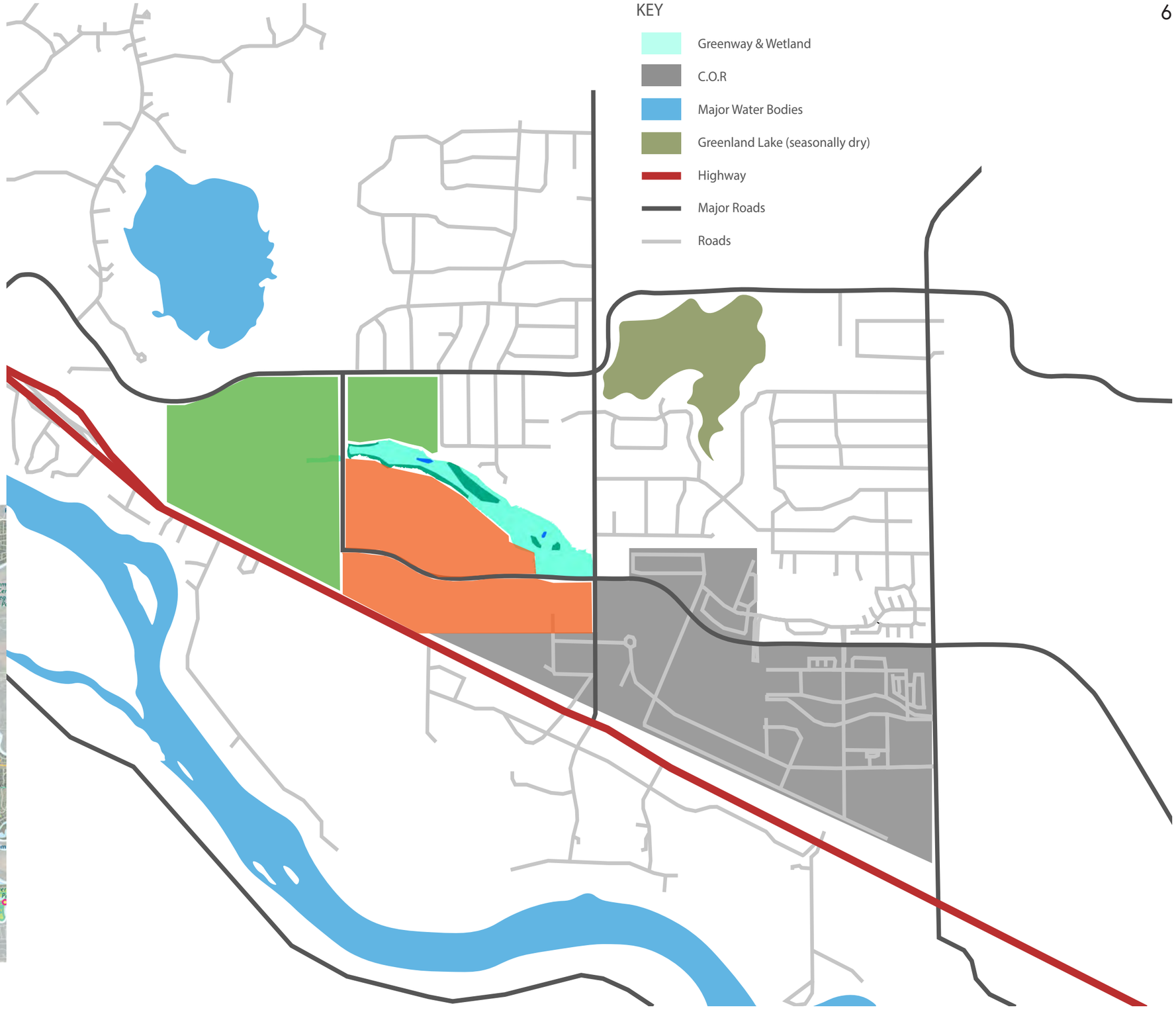


Figure 3 - The population of Ramsey, MN is expected to grow consistently over the next decades (City of Ramsey)

Site Context

The City of Ramsey has many different spaces in close proximity to one another. As highlighted in gray, the COR, or Center of Ramsey, lies just north of the Mississippi River. It offers resident access to many municipal buildings, retail, and dining and will continue to do so with future development. To the northwest lies Lake Itasca, a beautiful lake well known to Ramsey residents. The land set aside by the City for the Lake Itasca Greenway sits in between these two areas. Also, adjacent to this land, are parcels set aside for future development. Future commercial land use is indicated with orange, south of the Greenway property, and indicated in green is future residential development. In designing a trail for Ramsey residents to enjoy, it is important to understand the context of the existing site as well as what the context will be in the future, so that we are able to design a Greenway for future generations, not just the city as it is right now.

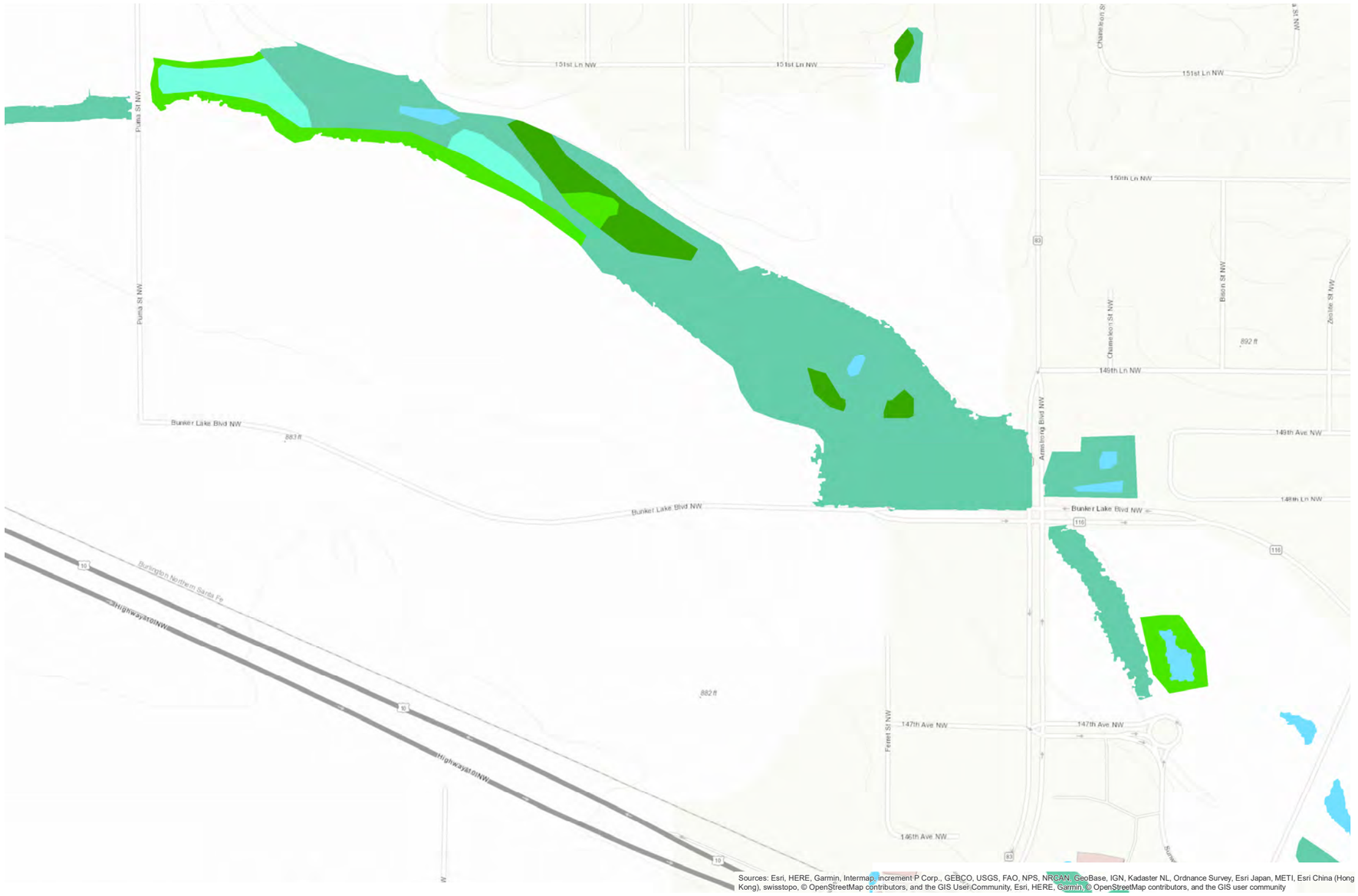




Analysis

Greenway Area SPCC Wetland Types

It was realized early on that the Lake Itasca Greenway is perhaps the most important section of the proposed greenway system. It connects one of Ramsey's greatest natural features to what will be the area of highest activity in the city. The corridor sits on the Anoka Sand Plain and is an important natural feature as it is mostly covered by seasonally flooded delineated wetland. Not only is the wetland a source of wildlife habitat but it also serves as the main infiltration and recharge for six of the eight municipal water wells in the city. Because of the importance of this site to the local ecology and the water quality of major wells in the city we advise that it is in the city's best interest to preserve the natural systems in this specific part of the city as well as others. One way to protect the wetlands is to implement buffers between the wetlands and sources of pollution. Two agriculture fields flank the north side of the wetlands on the Lake Itasca Greenway site. The topography of the fields slope towards the wetlands meaning that any runoff is flowing right into the wetlands. Currently there is no intervention preventing drainage from these fields into the wetlands, which is concerning. We propose a 100-foot-wide raised berm planted with switchgrass. The berm will act as a barrier blocking debris and runoff as well as dampening noise from farming operations. The deep root systems of the switch grass will further filter the runoff from the fields.



N

0 0.05 0.1 0.2 0.3 0.4 Miles

Legend

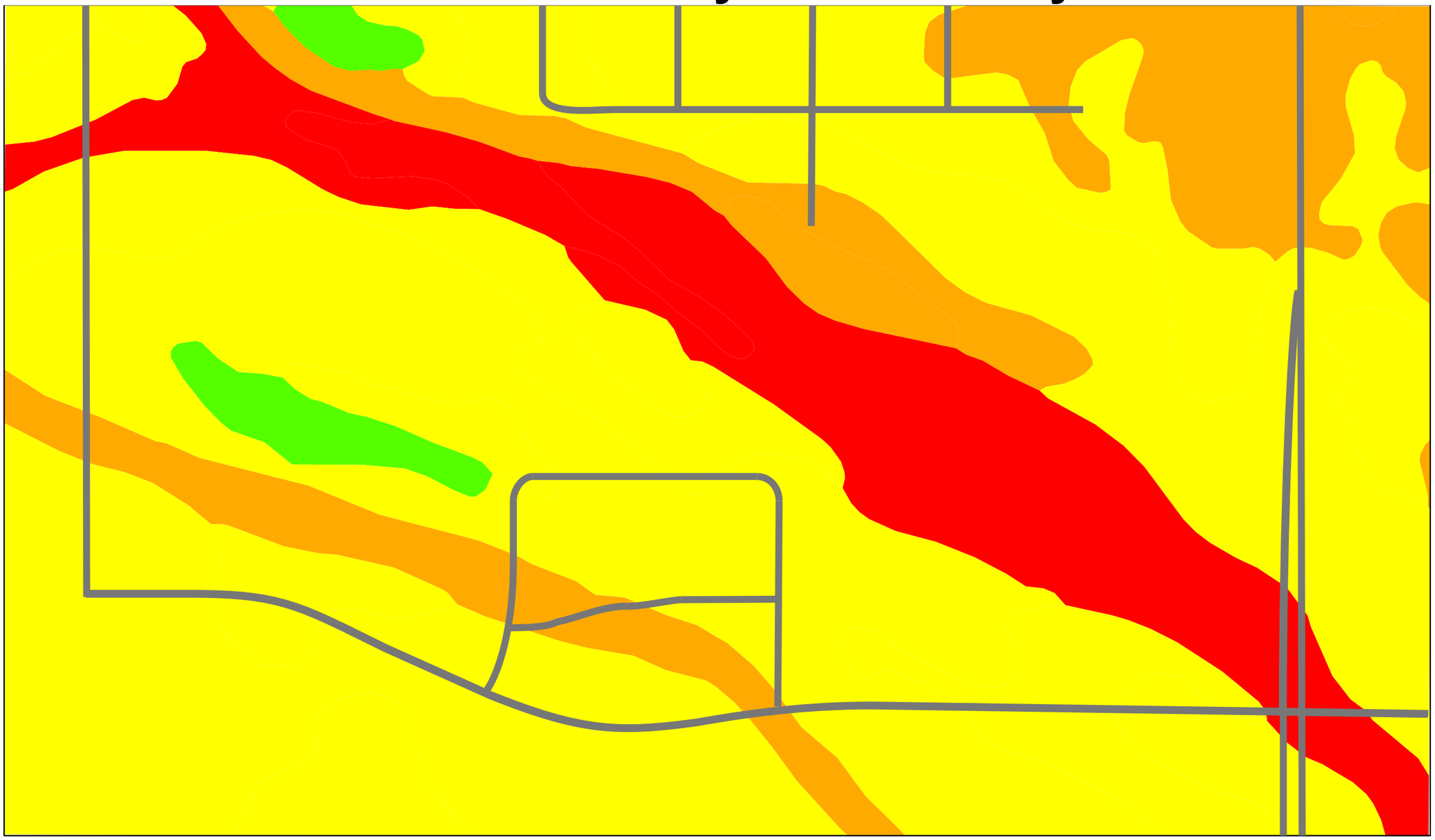
- Hardwood Wetland
- Seasonally Flooded Basin
- Shallow Marsh
- Shallow Open Water Community
- Shrub Wetland

Greenway Area Land Cover

Legend

- Open water wetland
- Altered/non-native dominated temporarily flooded shrubland
- Saturated altered/non-native dominated graminoid vegetation
- Seasonally flooded altered/non-native dominated emergent vegetation
- Semipermanently flooded altered/non-native dominated vegetation
- Mixed emergent marsh - seasonally flooded
- Grasslands
- Hydric cropland
- Upland cropland
- Altered Forest
- Land undergoing development
- Partly impervious (residential, commercial, etc)
- Roads and pavement

Soil Suitability for Greenway Structures



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Precedents

ACES Treehouse

Aspen, CO

Solitude in natural area

Ideal for watching wildlife and personal reflection

Materiality

Reflects natural surroundings

Education

Visitors can watch and learn about site wildlife ecology

Midtown Greenway

Minneapolis, MN

Easy connections from city streets to trail

Safely and clearly transports pedestrians and bikers from sidewalk to trail

Materiality

Urban infrastructure and natural vegetation seamlessly coexist

Commercial Connections

Businesses utilize proximity to public domain, and add to the trail's atmosphere

Discovery Hollow Nature Play Area

White Bear Township, MN

Unique play equipment

New avenues for imaginative play

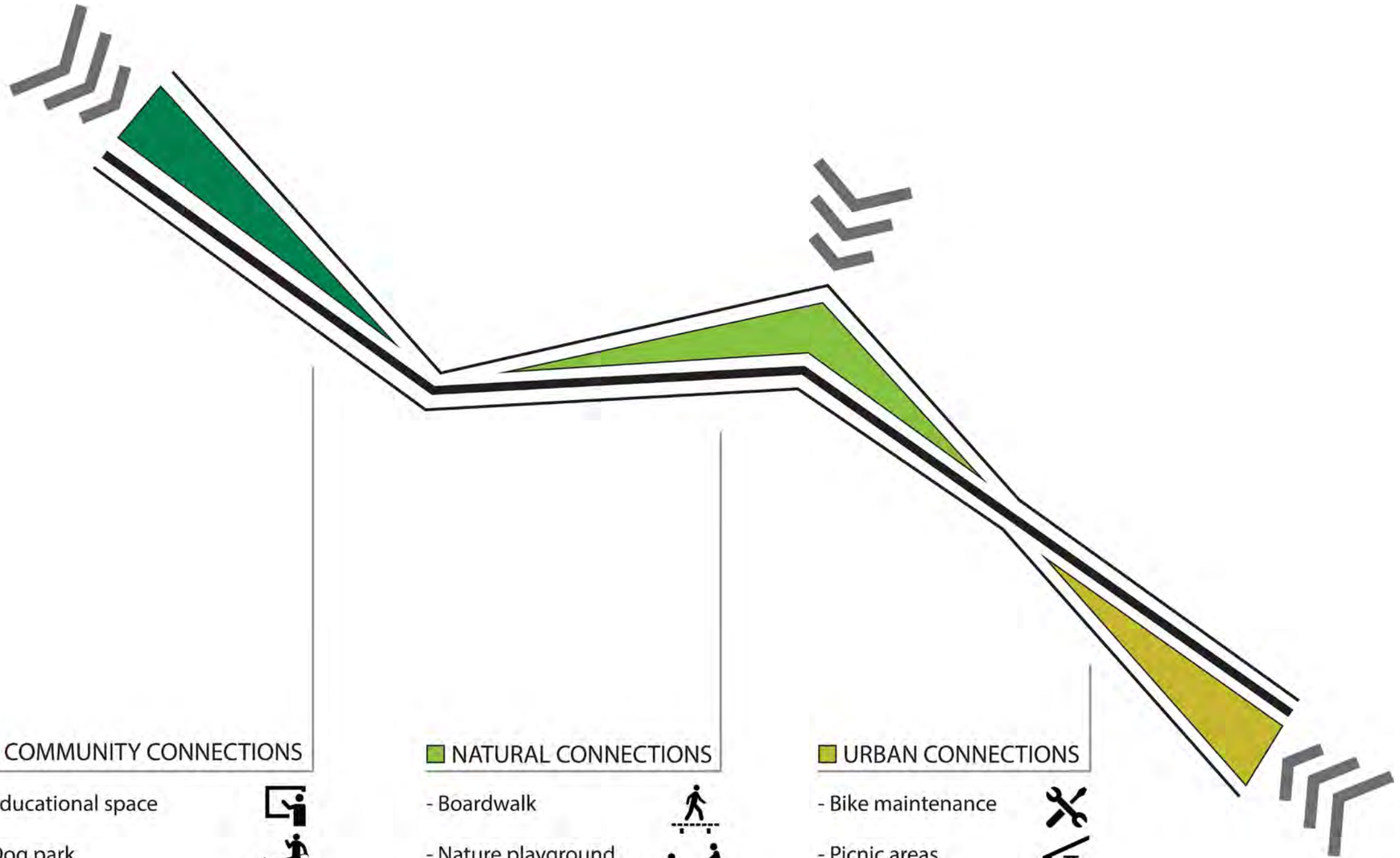
Materiality

Connects children with their natural surroundings

Education

Visitors can learn and take part in growing fruits and vegetables at community garden

Preliminary Programming Diagrams



COMMUNITY CONNECTIONS

- Educational space
- Dog park
- Picnic areas

NATURAL CONNECTIONS

- Boardwalk
- Nature playground
- Hammocking areas

URBAN CONNECTIONS

- Bike maintenance
- Picnic areas

LINEAR

Activity along the length of the trail

WALK
RUN
BIKE
SKI
SNOWSHOE
ROLLERBLADE
SKATEBOARD
HIKE

LOCALIZED

Activity in space alongside the trail

NATURE PLAYGROUND
OUTDOOR CLASSROOM
SEATING AREAS
PICNIC AREAS
HAMMOCKING SPOTS
SHELTERS

STATIONARY

Activity at a fixed point on the trail

WATER FOUNTAINS
WASTE/RECYCLING
BIKE MAINTENANCE
INTERPRETIVE SIGNAGE

PROGRAMMING

Lake/River

kayaking

fishing

skating

boating

Nature

bird watching

hiking

school visits

reading

sitting

hammocking

stormwater control

Structures

benches

kiosks

little library

shelters

drinking fountains

Pathways

running

walking

cycling

rollerblading

Open space

picnic

kite flying

meeting

education

concerts

markets

star gazing

yoga

SEASONAL ACTIVITIES

Snowmobiling
Ice Fishing
Dog Sledding
Bird Watching

Cross Country Skiing
Snow Shoeing
Skating
Sledding

Roller Blading
Picnicking
Community Garden
Fishing
Bird Watching
Nature Hike
Star Gazing
Dog Park
Libraries/Reading
Yoga
Markets
Flying Kites
Hammocking
Meeting Areas
Concerts
Commercial Programming
Rentals
Kiosks

Roller Blading
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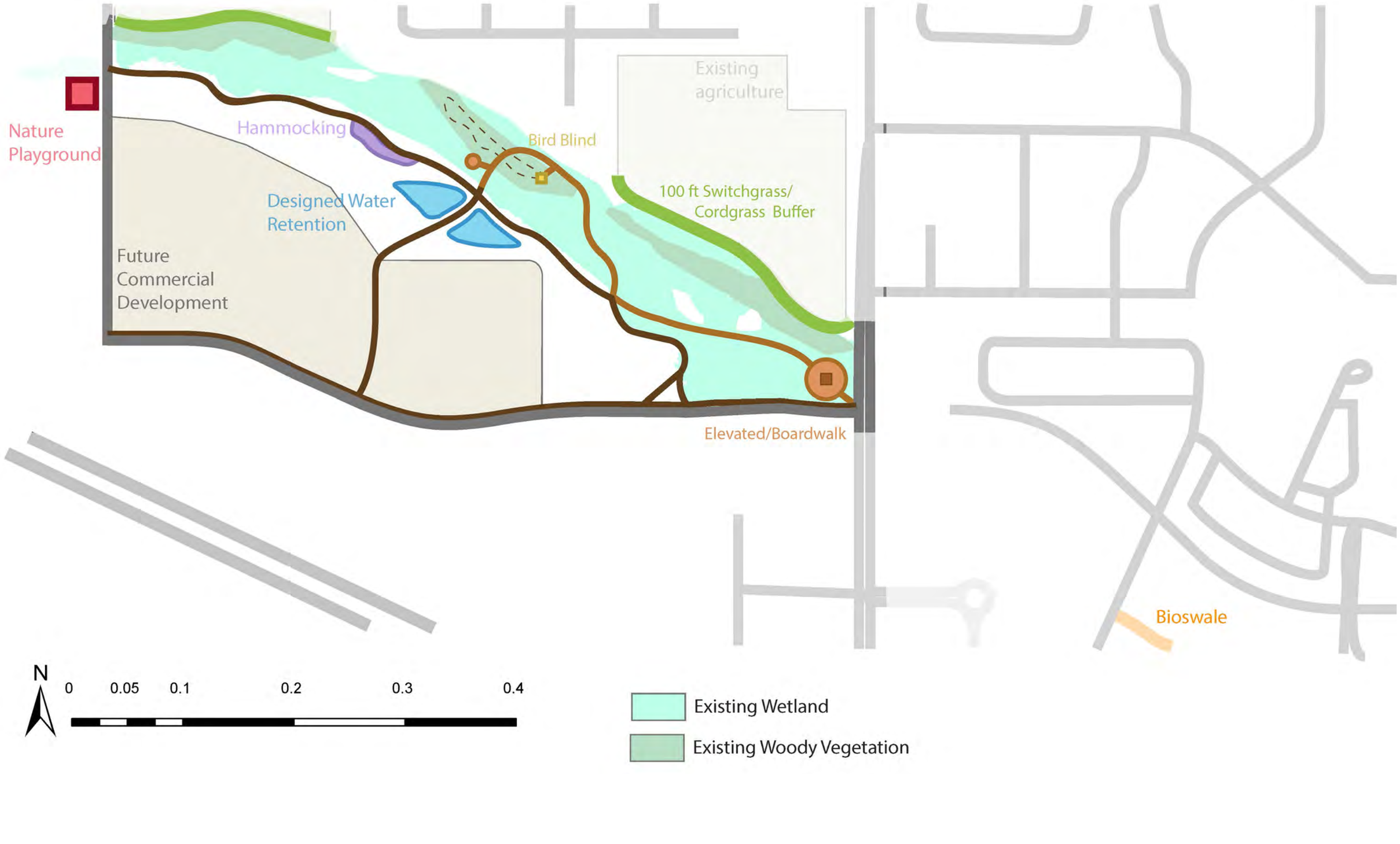
Design

Masterplan


Nature Playground
Hammocking
Bird Blind
Existing agriculture
Designed Water Retention
100 ft Switchgrass/ Cordgrass Buffer
Future Commercial Development
Elevated/Boardwalk
Bioswale
N
0
0.05
0.1
0.2
0.3
0.4
Existing Wetland
Existing Woody Vegetation

Planting Palette

Conifers

Eastern Redcedar
(*Juniperus virginiana*)

Red Pine
(*Pinus resinosa*)

Jack Pine
(*Pinus banksiana*)

Deciduous

Quaking Aspen
(*Populus tremuloides*)

Northern Pin Oak
(*Quercus ellipsoidalis*)

Northern Red Oak
(*Quercus rubra*)

Bur Oak
(*Quercus macrocarpa*)

Swamp White Oak
(*Quercus bicolor*)

American Basswood
(*Tilia americana*)

Flowers & Fruits

Prairie Crabapple
(*Malus ioensis*)

Serviceberry
(*Amelanchier laevis*)
(*Amelanchier spicata*)

Showy Mountain Ash
(*Sorbus decora*)

Hawthorn
(*Crataegus punctata*)
(*Crataegus succulenta*)

Planting Palette

Prairie Grasses

Big Bluestem
(*Andropogon gerardii*)

Little Bluestem
(*Schizachyrium scoparium*)

Prairie Dropseed
(*Sporobolus heterolepis*)

Prairie Forbs

Prairie Coreopsis
(*Coreopsis palmata*)

Pasque Flower
(*Anemone patens*)

Flowering Spurge
(*Euphorbia corollata*)

Golden Alexanders
(*Zizia aurea*)

Rough Blazing Star
(*Liatris aptera*)

Aromatic Aster
(*Aster oblongifolius*)

Wetland Plants

Cattail
(*Typha latifolia*)

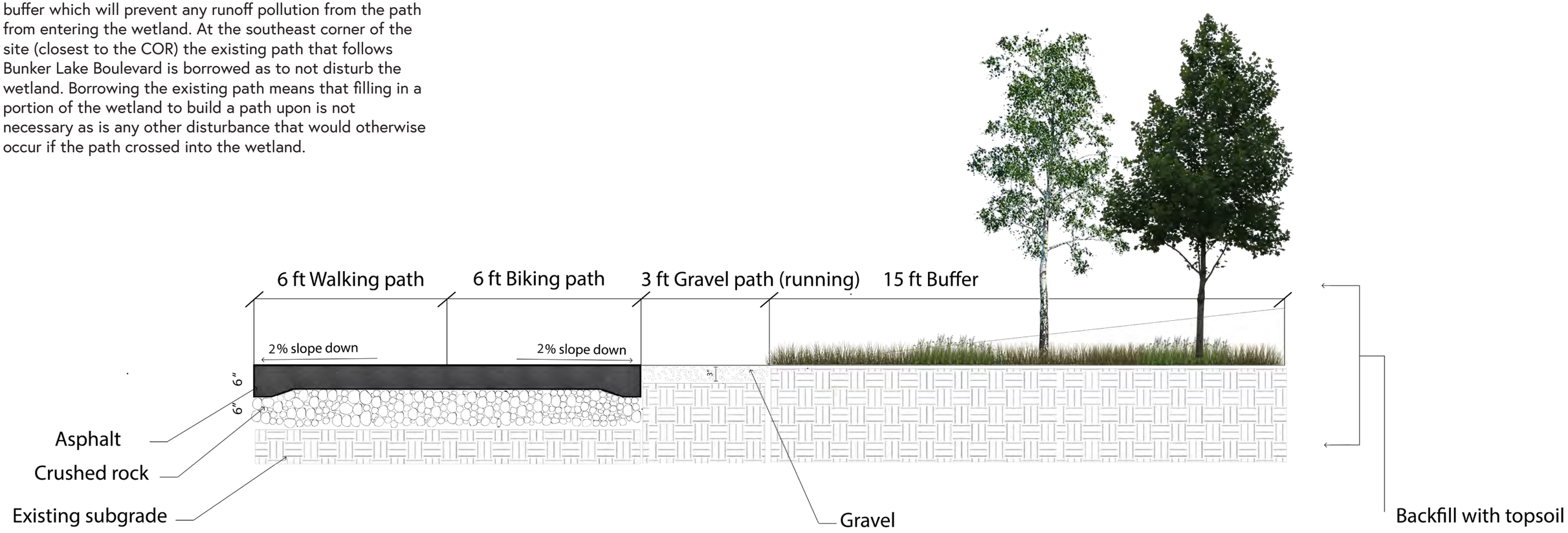
Northern Blue Flag
(*Iris versicolor*)

Common Arrowhead
(*Sagittaria latifolia*)

Rose Milkweed
(*Asclepias incarnata*)

Path

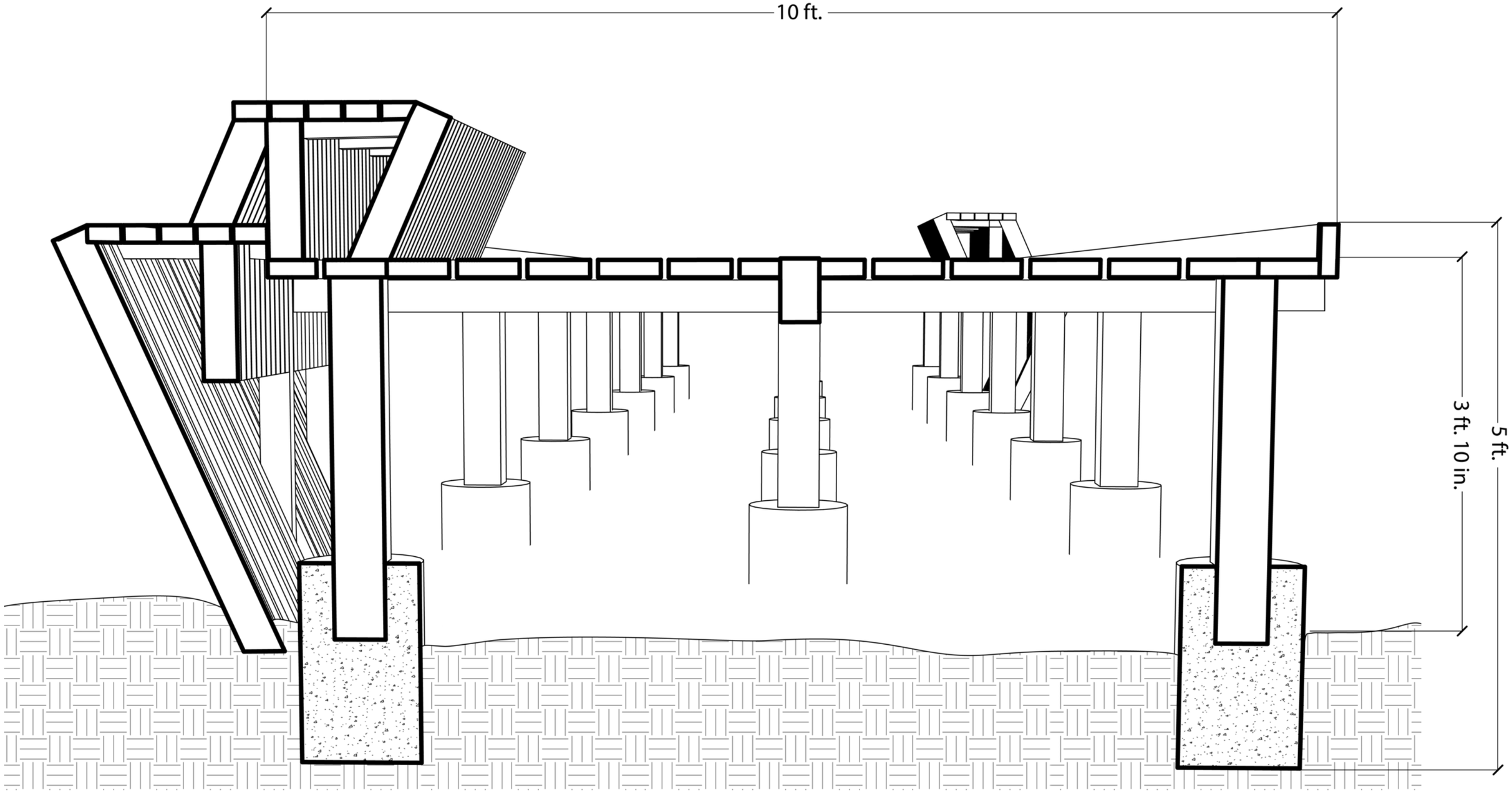
The path layout that we propose will not only be able to handle the high foot traffic that is to be expected for this stretch of greenway, but is also sensitive to the wetland. The asphalt path is comprised of 6-foot-wide walking path, 6 foot biking path, and a 3 foot wide gravel path for runners (running on asphalt for extended periods of time can cause runners pain, gravel is a more forgiving surface that many runners prefer). The path is also accompanied by a 15-foot buffer which will prevent any runoff pollution from the path from entering the wetland. At the southeast corner of the site (closest to the COR) the existing path that follows Bunker Lake Boulevard is borrowed as to not disturb the wetland. Borrowing the existing path means that filling in a portion of the wetland to build a path upon is not necessary as is any other disturbance that would otherwise occur if the path crossed into the wetland.

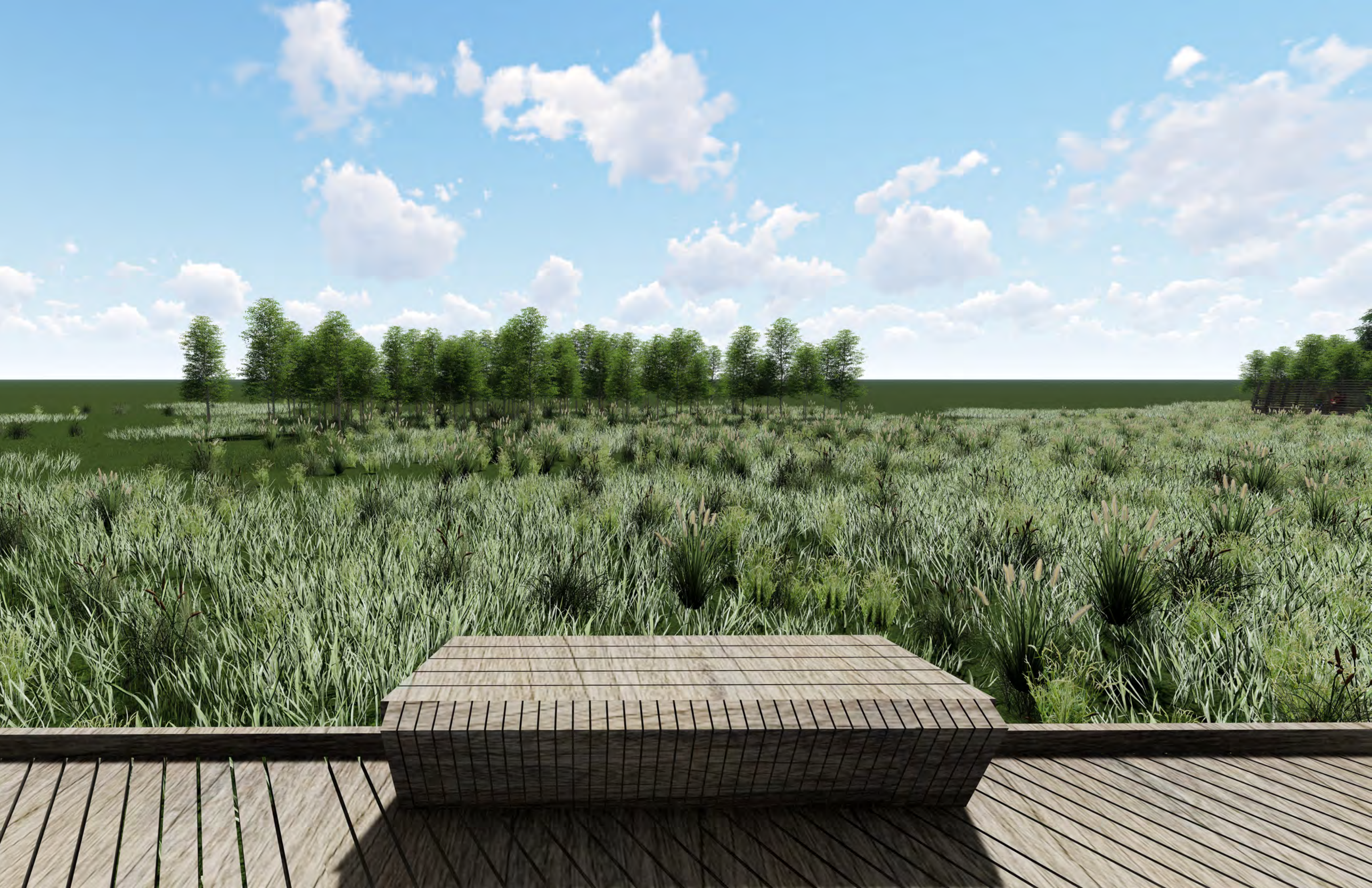


Boardwalk

We wanted people to be able to have a closer experience, interact, and learn about the wetland first hand, however with the current path and buffer we felt that this was not being achieved to its full potential. Therefore, we decided to add a boardwalk addition to the trail system. We suggest that the deck of the board walk be constructed out of a composite material rather than wood for increased durability and overall lifespan. A composite material that imitates the look of wood to keep the natural feel is preferable. Precast concrete piers are used to support the boardwalk in the soft hydrologic soil. We chose concrete over treated wood because it holds up better. They were also chosen because the boardwalk is already a considerable investment, concrete is more cost efficient than using steel supports or helical piers. However, if they can be afforded helical piers may be a worthy investment. Benches should be strategically placed along the boardwalk with viewsheds that take advantage of the natural landscape. A concept we came up with was to have a bench hanging off the edge. This will increase the connection between people and nature as well as increase the views afforded to people. The proposed boardwalk is 10 feet wide and about 3 feet 10 inches off the ground plane depending on the variability of the surface. It is supported every 7 feet 10 inches at the corners of modular panels that are constructed off site. Aside from the supports which are 6-inch-thick composite posts, the whole boardwalk is made out of standard length 2 by 4 composite planks cut down to size.

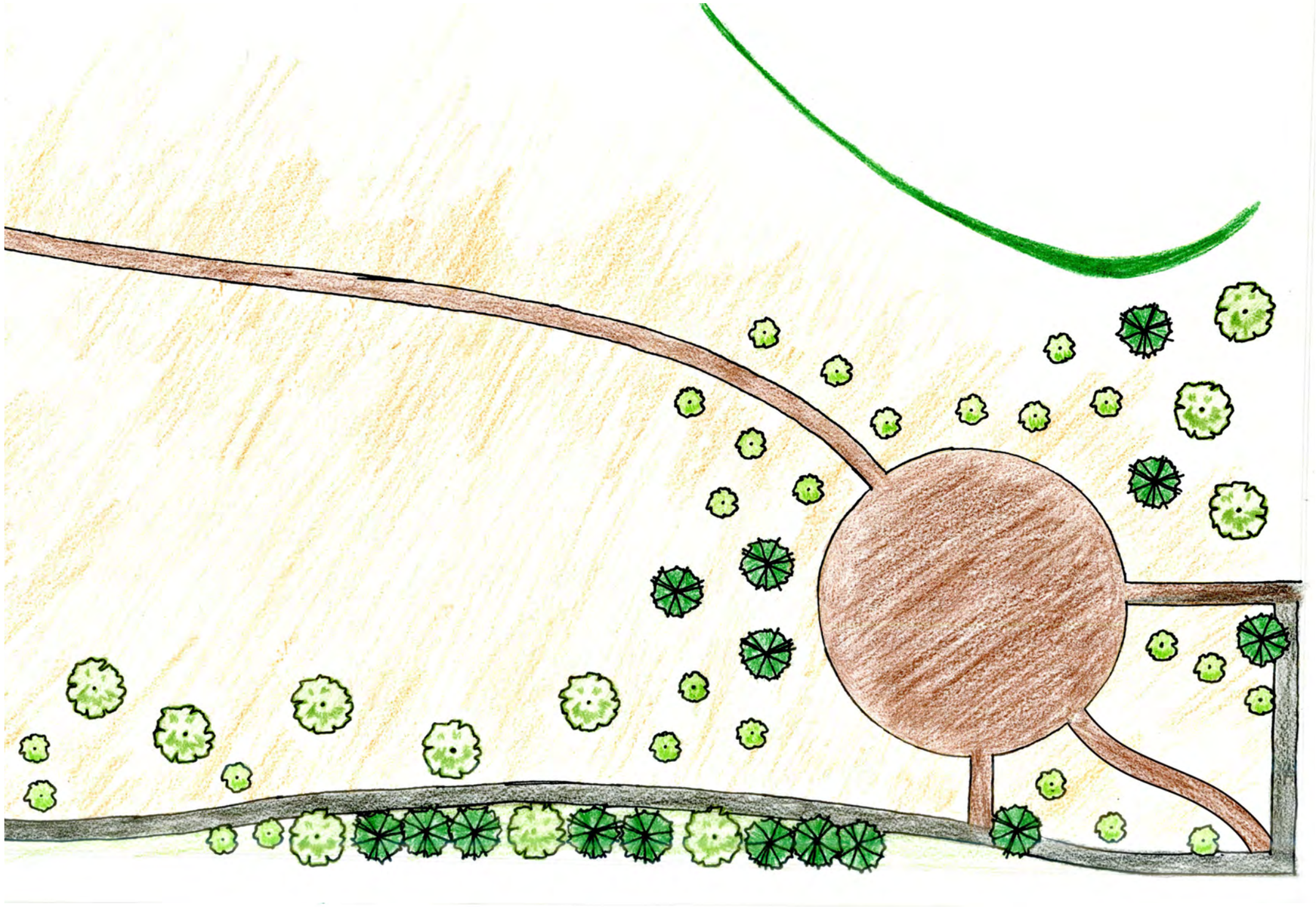
Boardwalk Section

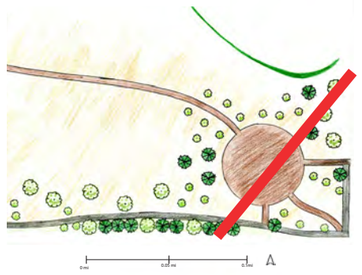


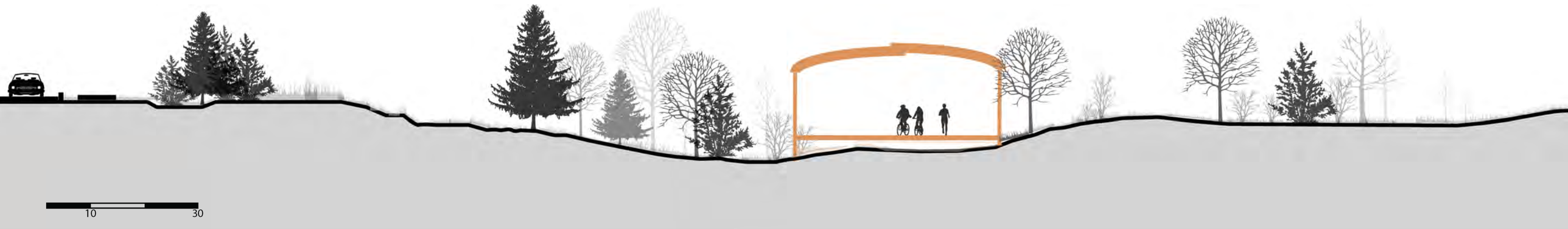


Entrance

A decision was made to have a larger raised platform located at the southeast corner that would serve as a gathering spot and gateway from the COR to the greenway. We believe that it is important for the platform to be elevated off the ground to continue the theme of impacting the wetland to the smallest degree possible. The southeast corner is an important transition point from an urban center to a landscape that emphasizes nature and tranquility. So, we suggest that this gateway area facilitates this transition with visual cues and also serve as a main trailhead for the greater greenway system. These cues can include aspects such as material change and added signage and branding to subtly let people know that they aren't in a bustling city center anymore, they are in nature and it should be treated with respect. Benches and other seating should be included on this platform to make it more inviting to the public. The gateway platform would also be a place for public postings, info, maps, and any notices pertaining to the greenway (areas of the path being worked on, areas to avoid, etc.). This layout for the path, boardwalk and platform allows for people to still experience the wetland's rich nature while simultaneously protecting it from much of the damage that would occur from the construction of a standard path that cuts though the wetland.







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Bird Blind

The abundance of life that wetlands support makes them a favorite hunting ground for many species of birds. While the site is mostly covered by wetland there are a few stands of trees (primarily aspen) that populate certain areas of the site. These tree canopies offer favorable nesting conditions for birds to raise their young come spring. We would like to take advantage of these conditions and build a structure that gives people the opportunity to observe and learn about the different birds that frequent the area. We have come up with a bird blind placed in a location that provides viewing of both the wetland and the aspen groves to maximize the variety of bird activity to be observed. The blind is secluded from the main boardwalk so birding enthusiasts will be able to observe birds free from the noise or disruptions that could occur along the main boardwalk. The bird blind has two parts, the first we call the Corridor and the second part we call the Nest. The Corridor is within an aspen grove at the center of the site, placed on an existing 2-foot rise in ground elevation. Placing it on this rise will reduce any chance of flooding that might otherwise partially submerge the decking. The walls form a sort of corridor along a branch of boardwalk that crosses into the aspen grove. Walk through the Corridor and you will reach the Nest which protrudes out and provides viewsheds into the wetland. Like the boardwalk the structure of the bird blind is modular, panels are able to be put together off site for easy construction, deconstruction, and minimal disruption of nature. The bird blinds are also made from the same 2 by 4 composite material as the boardwalk so it all flows together beautifully as one structure.

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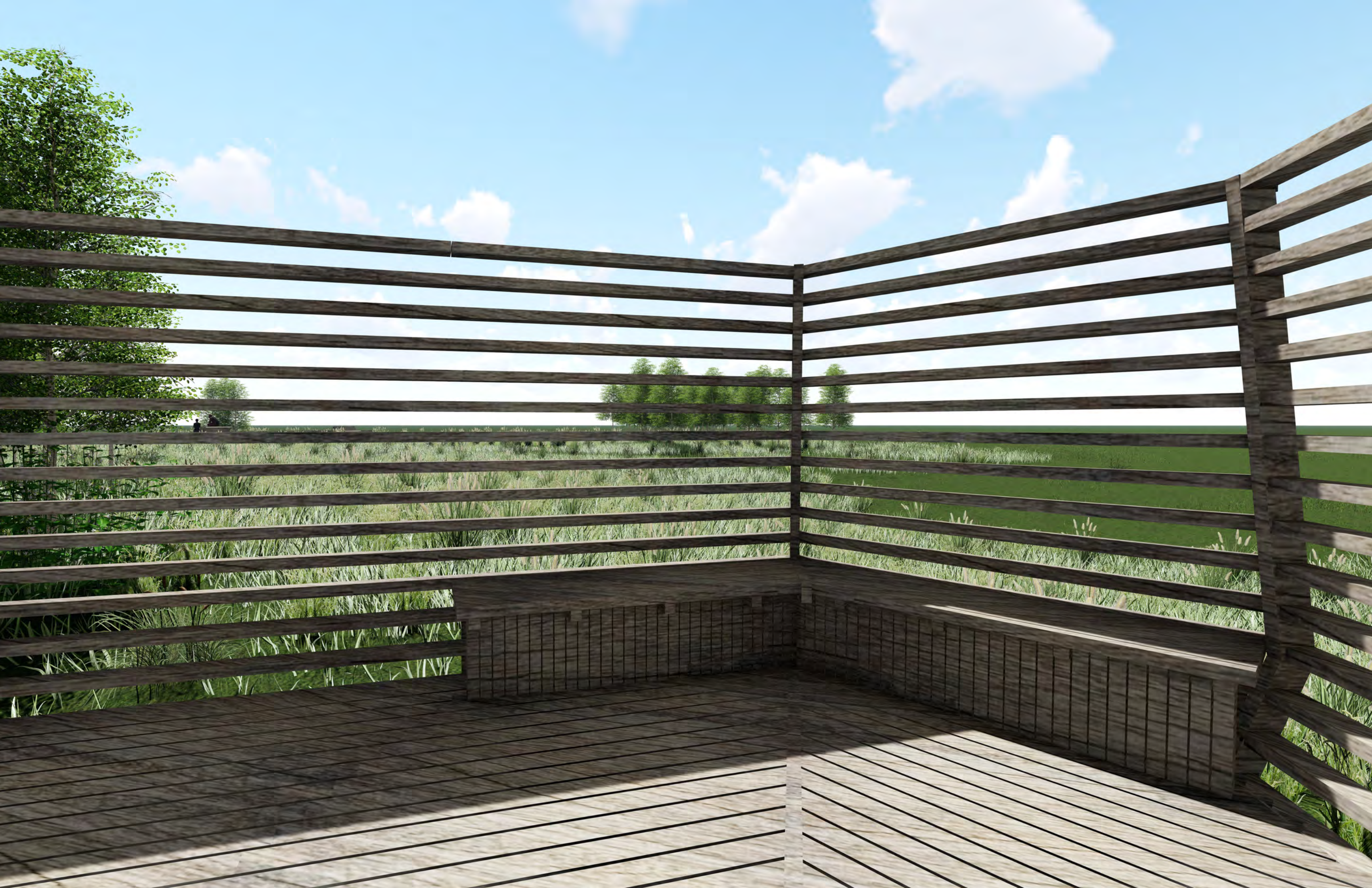
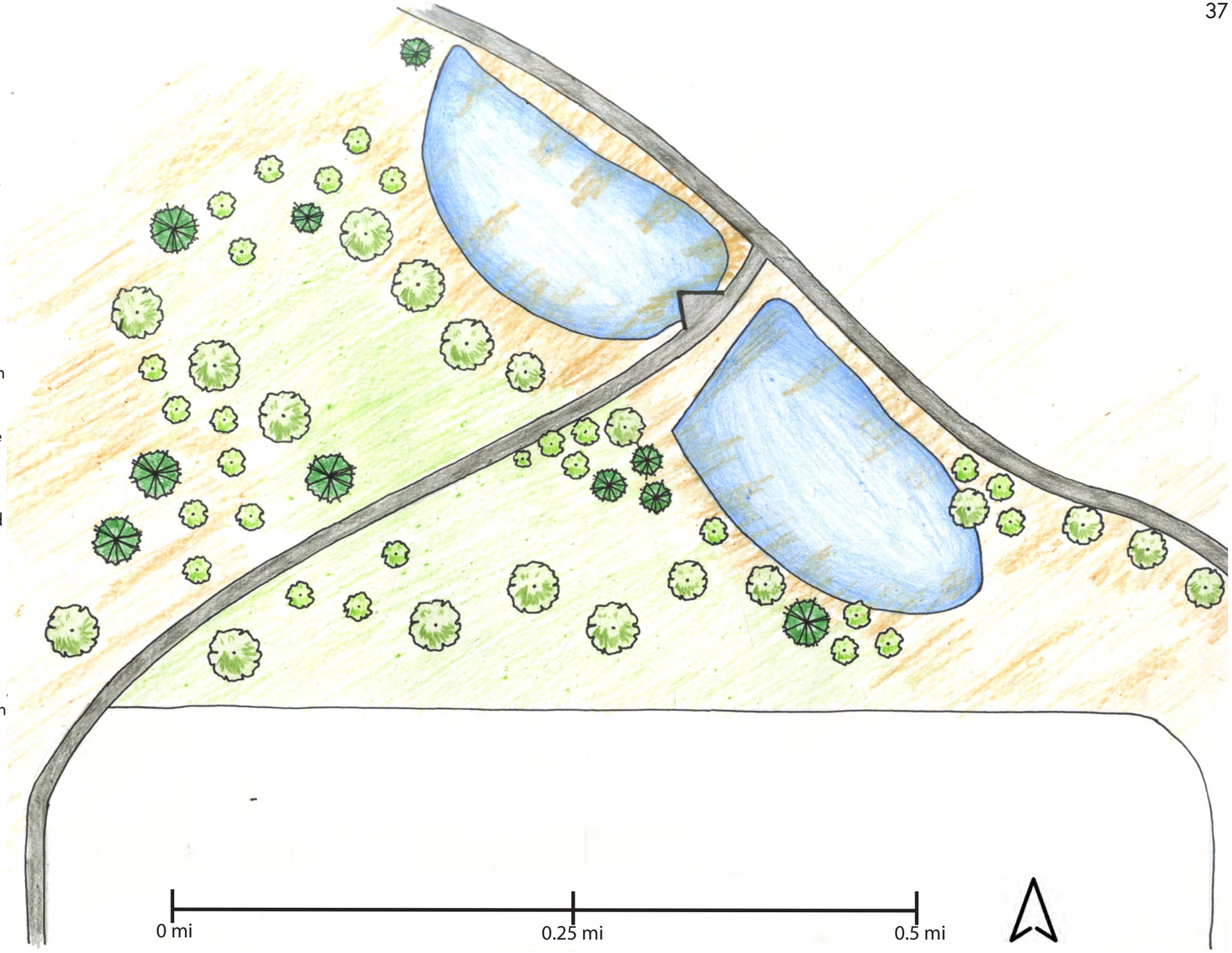
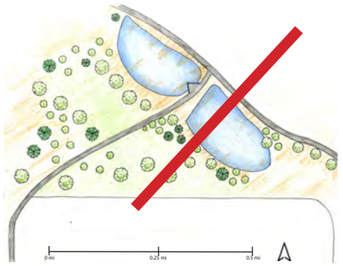


Commercial Connection

In accommodating the increased number of residents and increase in development, the City of Ramsey has set aside land bordering the southside of the wetlands and proposed greenway trail for commercial development. This future development adjacent to the site presents a unique opportunity to proactively create a connection between the greenway and any commercial development. This will present a symbiotic relationship, where businesses can benefit from increased traffic through the area, and the businesses can bring more people to the Lake Itasca Greenway. In connecting the trail to the commercial property, there is also an opportunity to create a safe, beautiful space at the back of the commercial property, an area pedestrians usually are not a part of. In adding natural features and more pedestrian welcoming infrastructure such as benches, open grassy areas and plazas, this transition from the biomorphic design of the Greenway, to the hardscape of the commercial area will not only attract more business but could also redefine the public realm around commercial spaces. Lastly, there is an opportunity found in the integration of future commercial development with the existing wetland found on the Greenway property. As found in current Ramsey zoning codes for business districts, retention or detention ponds will be constructed according to the amount of parking lot and rooftop area a new development possesses. In addition, there are policies that require including retention ponds in new commercial developments. First, these retention ponds can be constructed in order to hold water coming from the commercial property and filter it before it enters the wetlands; however, we propose that they could be built with the intention of becoming an amenity for the public. The area surrounding the pond should have plantings that make it beautiful and offer a visual break from the commercial development with benches and resting spots that view the ponds. This could not only create a beneficial relationship to this particular area, but it could also set a new standard for the way commercial developments are designed, and be an example for other communities to use as a precedent in their commercial developments. Throughout the whole process of development great care must be put forth to make sure the wetlands are properly protected from possible pollution resulting from the future commercial development.

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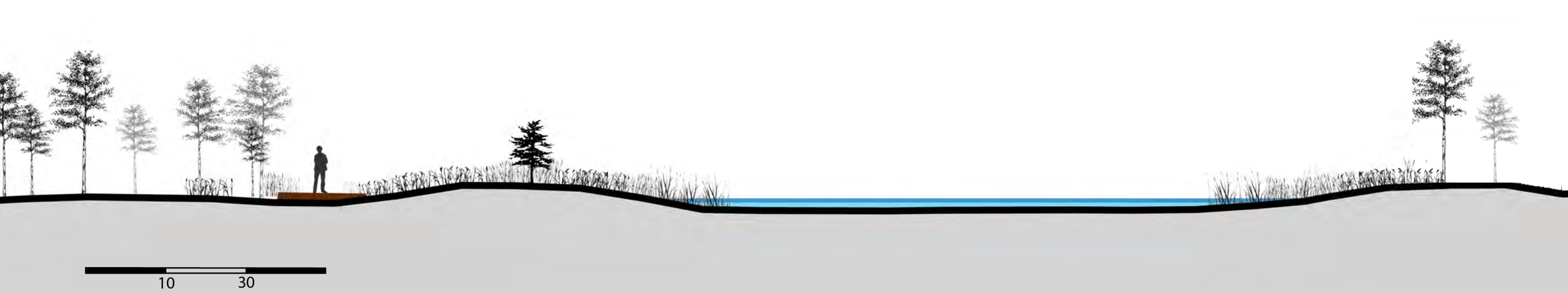
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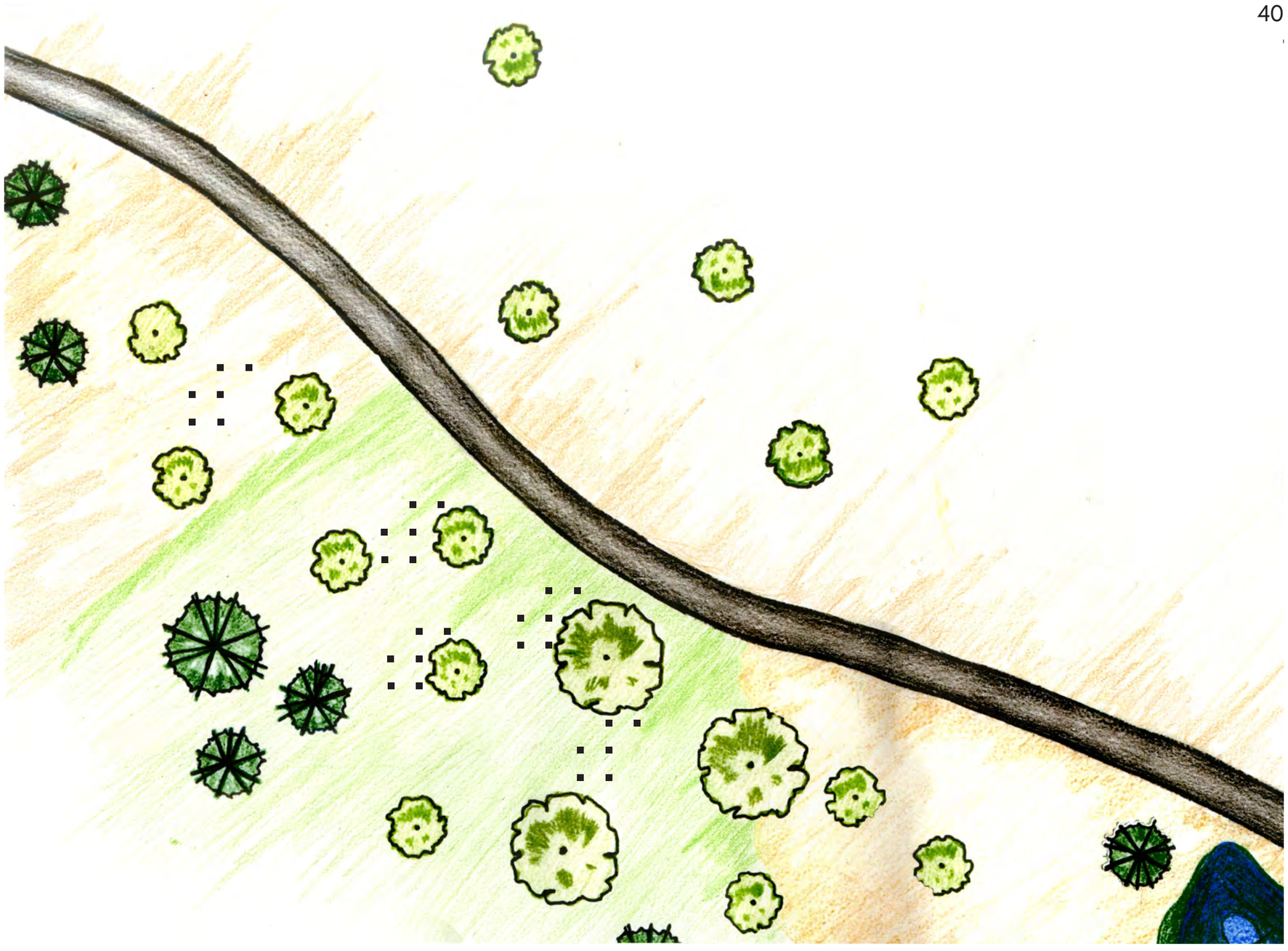
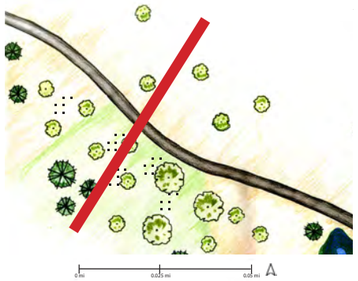
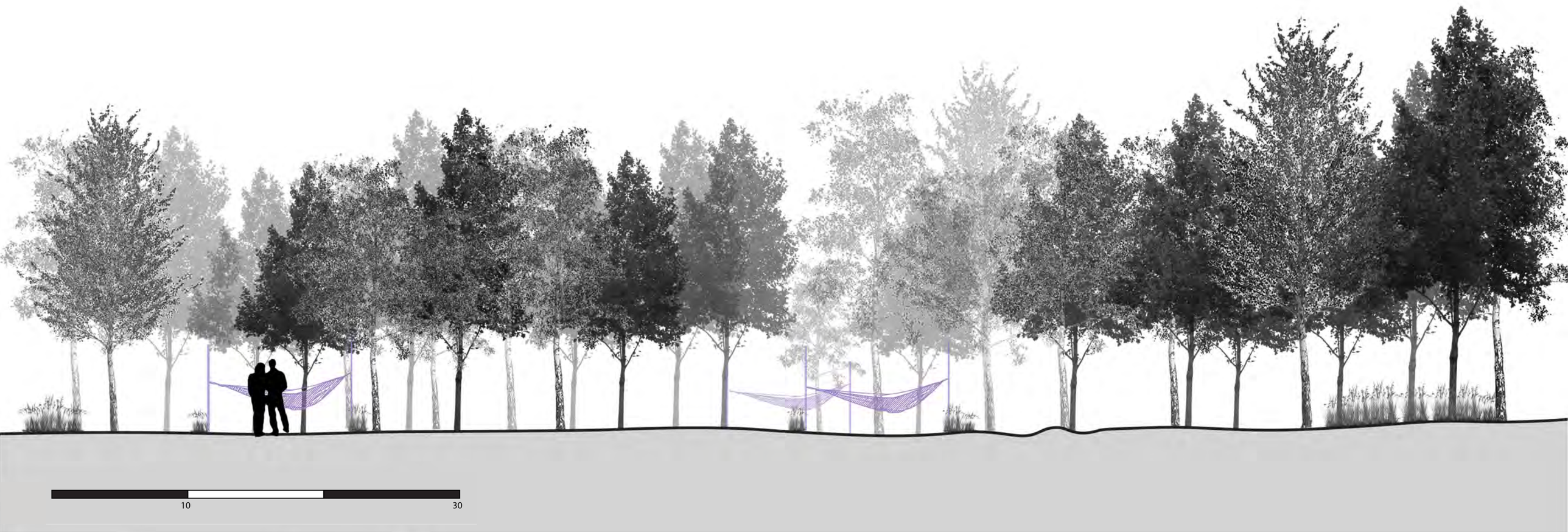
Hammocking Woods

The hammocking woods are a tranquil place where people can relax in a relatively secluded area. Surrounded by aspen trees and placed outside of the wetlands, the hammocks will be in the perfect location to view the natural beauty of the area without becoming unstable due to seasonal floods. The hammocks will be hung on 5-8 foot tall reclaimed wooden posts since the surrounding aspen trees are currently too immature to support weight. The posts will be placed 10 feet apart, the average length of a hammock. People will then be able to bring their own hammocks whenever they wish and utilize this space to unwind from their busy lives.







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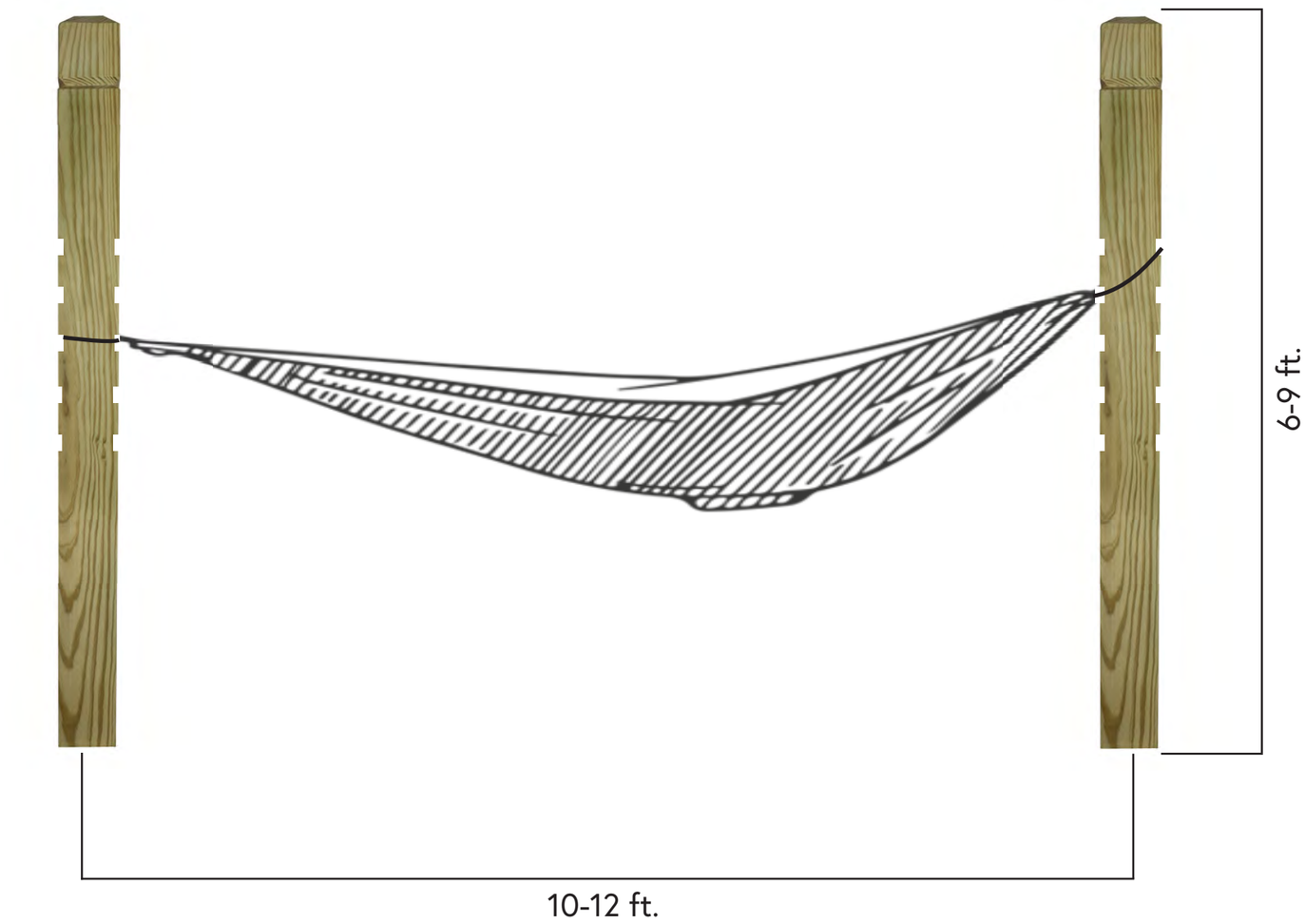
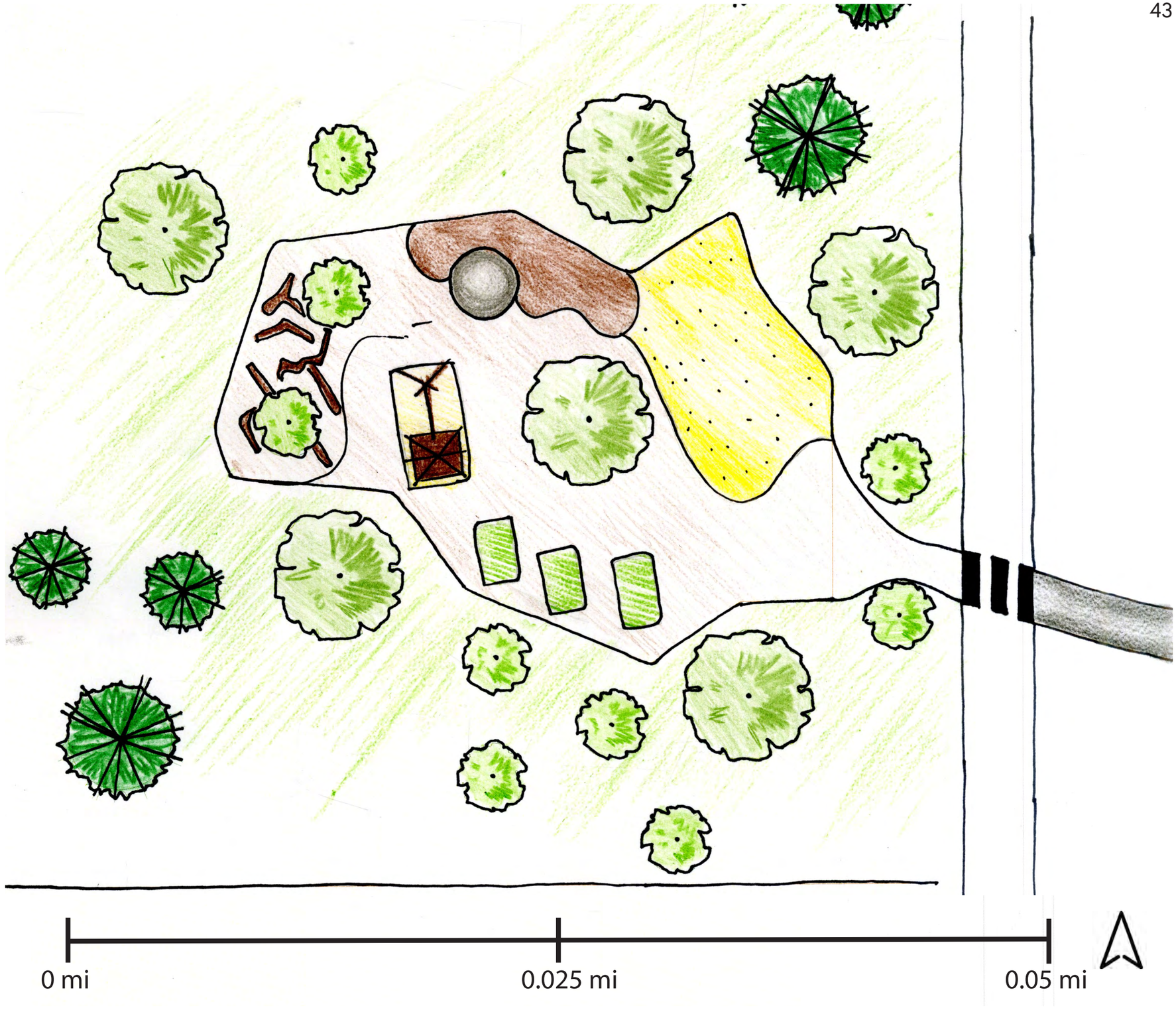
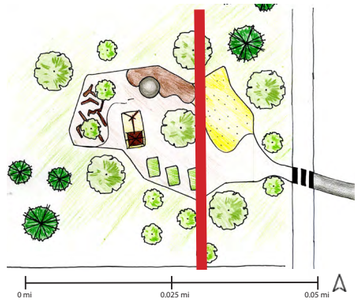

6-9 ft.
10-12 ft.

Nature Play

A nature playground is a great place to let kids be themselves while also learning about some of the resources and materials that the Earth has to offer. The City of Ramsey already has plans to place a nature play within the future residential area across from the Greenway to the west. So we decided to give Ramsey an idea about where this nature play could be located and what it could look like. The playground would be placed directly across the road from the exit of the Greenway for optimal access. There would also be a safe crosswalk to the nature play so families can safely make it to this destination. Inside the nature playground there will be a large sandbox, a swing set constructed from reclaimed wood, and lots of logs and big rocks for kids to climb and sit on. There will also be a couple large raised vegetable garden beds so that children can learn how to grow their own produce at a young age. The whole playground, except for the entrance will be surrounded by Aspen trees to immerse users in nature even further.

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Bioswale

The planned Ramsey Parkway is currently designed with a bioswale filtering runoff along the center median. With the sandy soil of the area allowing for high infiltration rates into the aquifer below, any runoff that is collected must be first filtered, and so in a bioswale the runoff is filtered through vegetation.

This vegetation must be tolerant of a variety of environmental conditions, most notably salt-laden runoff from winter de-icing operations, exposed conditions, and alternating periods of drought and flood. Our goal was to choose plants that were native to either Minnesota or central and eastern North America, as these were the plants that were most likely to thrive in the local conditions and least likely to damage nearby ecosystems. In addition, we aimed to focus on plants that were of value to pollinators and birds, along with general year-round visual interest for residents.

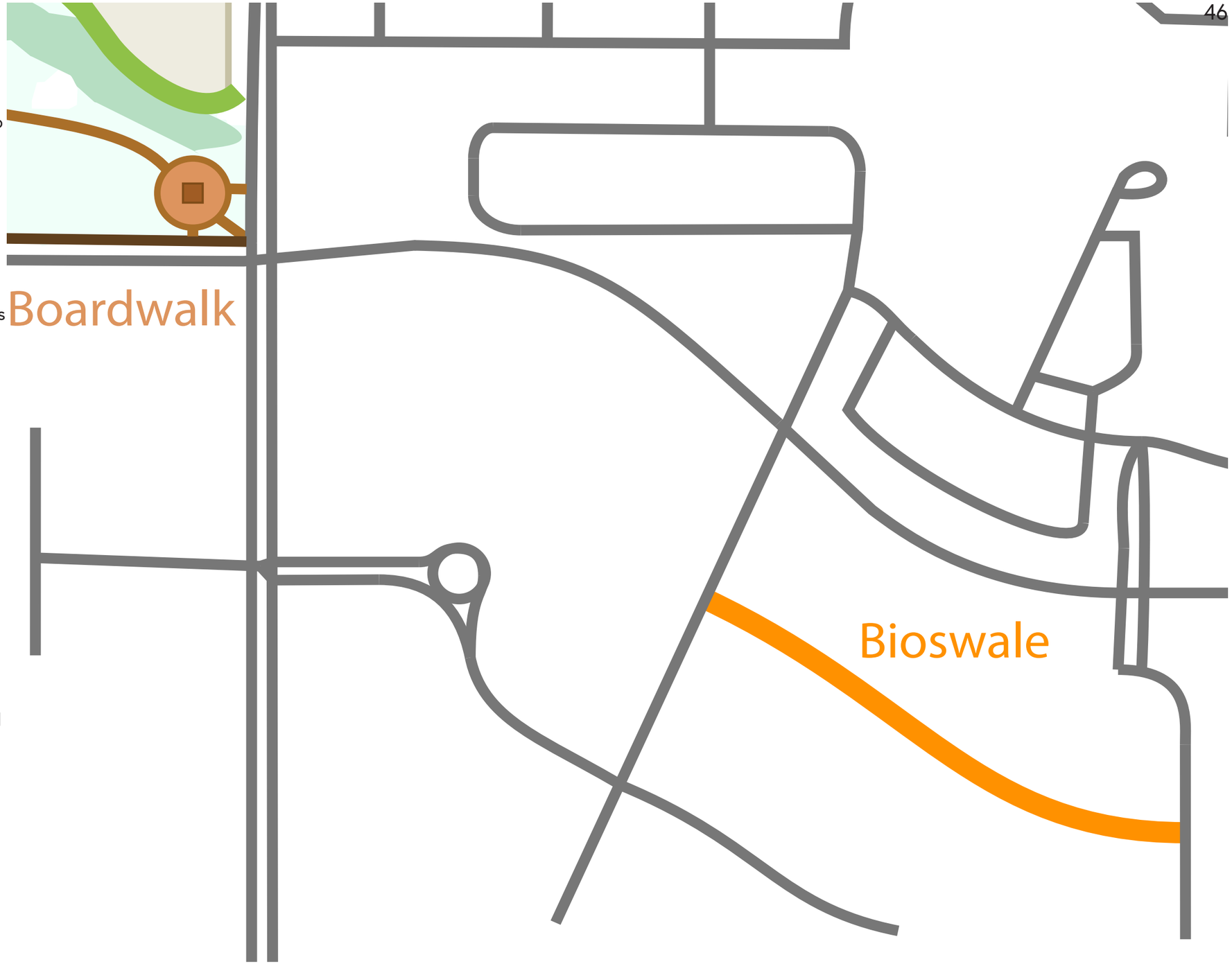
Bolton & Menk had recommended that the ends of the bioswales be planted with more ornamental plantings, with the center stretches seeded with a native plant mix. We concur with this recommendation, as it reduces long-term maintenance over most of the area while increasing habitat value for birds and pollinating insects compared to lawn or shrubbery. In particular, we recommend the seed mixes specifically designed for detention basins and other runoff-dominated areas from Prairie Moon Nursery and Prairie Nursery, which have a good mix of grasses and flowering plants native to the Minnesota-Wisconsin area.

One design element of the bioswale is a 5-foot buffer strip of grass. We recommend a mix that includes the highly salt-tolerant 'Fults' alkaligrass, to be mown occasionally and irrigated as needed through the summer.

For the high-visibility ends of the bioswales, we kept the plant selection relatively simple, approximately 2 plants blooming per season (spring to fall) that were of benefit to pollinators. We also included shrubs for additional flower color, fall color, and fruit for birds.

Our tree selections were focused on those that provided interest through multiple seasons, could tolerate the site conditions, and most importantly were beneficial to pollinators. Other trees such as honey locusts, hackberries, or ginkgoes could certainly be included as well.

Overall, this bioswale planting plan is designed to engage both the public and nature in filtering stormwater runoff, reducing pollution of valuable water resources.



early summer

late summer

Conclusion

The City of Ramsey is a beautiful area that is highlighted by its natural surroundings such as the Mississippi River, the Rum River and Lake Itasca. It has also become an area of urban development, attracting new homeowners and thriving businesses. It is our belief that the existing natural features can be highlighted and protected, while nearby future development can be successfully integrated into the existing area and thrive in an area connected with green space and public realm. It is also our belief that the residents and visitors of Ramsey, MN can enjoy both the urban and natural spaces simultaneously, enjoying recreational activities and also having easy access to the many amenities.

Through the Lake Itasca Greenway we wish to create a human experience with nature, connecting the COR to Itasca with a focus on stormwater management in respect to future development and existing wetlands.